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TECH CENTER 1600/290

CLAIMS AS THEY WILL STAND UPON ENTRY OF THE AMENDMENT

1. (Four times amended) A method for producing L-aspartic acid comprising:  
treating an ammonium fumarate solution, which consists essentially of ammonium fumarate and water, with aspartase to generate an ammonium L-aspartate solution;  
heating said ammonium L-aspartate solution to a temperature within the range of 50 to 130°C;  
adding fumaric acid in the form of dry crystals, moisture-containing crystals, or an aqueous suspension to said heated ammonium L-aspartate solution in a molar ratio of 0.4 to 0.8 to the total molar amount of ammonium L-aspartate and ammonium fumarate contained in the ammonium L-aspartate solution to form a resultant mixture and applying a shearing force to the resultant mixture, while maintaining the temperature between 50°C and 130°C to obtain a homogenous solution;  
allowing to stand and/or cooling said homogenous solution to crystallize L-aspartic acid, thereby obtaining a suspension containing L-aspartic acid; and  
separating L-aspartic acid crystals from said suspension.
2. (Twice amended) The method according to claim 1, wherein the temperature of said suspension containing L-aspartic acid crystals is in the range from 25 to 100°C when the crystallized L-aspartic acid is separated therefrom.
3. (Twice amended) The method according to claim 1, wherein said homogenous solution is further maintained at 50 to 130°C for 0.1 second to 1 hour.
4. (Three times amended) The method according to claim 1, wherein said shearing force is applied by mixing the resultant mixture continuously.
5. (Four times amended) The method according to claim 1, wherein said cooling is performed at a rate of 0.1 to 5°C/min until the temperature of said homogenous solution is brought to between 25 and 100°C.

6. The method according to claim 5, wherein the cooling is performed by evaporating water under reduced pressure; condensing the evaporated water by cooling through a condenser; and returning the condensed water to a reactor for L-aspartic acid crystallization or removing the condensed water.
7. The method according to claim 6, wherein pressure reduction at the time of cooling under reduced pressure is performed at a rate of 1-20 torr/min from a range of pressure 10-200 higher than the vapor pressure at which the solution to be cooled begins to boil.
10. (Four times amended) A method for producing L-aspartic acid comprising:
  - treating an ammonium fumarate solution with aspartase to generate an ammonium L-aspartate solution;
  - heating said ammonium L-aspartate solution to a temperature within the range of 50 to 130°C;
  - adding fumaric acid in the form of dry crystals, moisture-containing crystals, or an aqueous suspension to said ammonium L-aspartate solution to form a resultant mixture; and
  - cooling said resultant mixture at a rate of 0.1 to 5°C/min to between 25 and 100°C, thereby obtaining a suspension containing L-aspartic acid; and
  - separating L-aspartic acid crystals from said suspension.
11. (Three times amended) The method according to claim 10, wherein said resultant mixture before cooling is a homogenous solution.
12. The method according to claim 10, wherein the cooling is performed by evaporating water under reduced pressure; condensing the evaporated water by cooling through a condenser; and returning the condensed water to a reactor for L-aspartic acid crystallization or removing the condensed water.

13. The method according to claim 12, wherein pressure reduction at the time of cooling under reduced pressure is performed at a rate of 1-20 torr/min from a range of pressure 10-200 torr higher than the vapor pressure at which the solution to be cooled begins to boil.
15. The method according to claim 1, wherein said separating step is performed by filtration.
16. (Once amended) The method according to claim 1, further comprising washing the L-aspartic acid crystals obtained in said separating with water.
17. (Once amended) The method according to claim 15, wherein the mother liquor obtained by said filtration is used as a source of ammonium fumarate.
18. (Once amended) The method according to claim 17, wherein the mother liquor is used repeatedly.
19. (Once amended) The method according to claim 16, wherein the washing liquid obtained after washing is used as a source of ammonium fumarate.
20. (Twice amended) The method according to claim 1, wherein said allowing to stand and/or cooling is performed by feeding said homogenous solution into a crystallization slurry vessel.